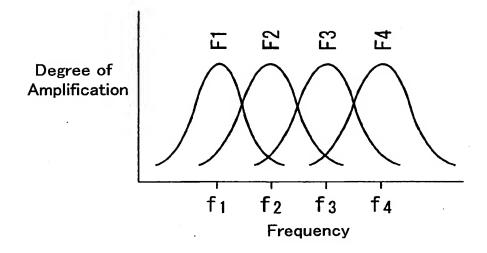
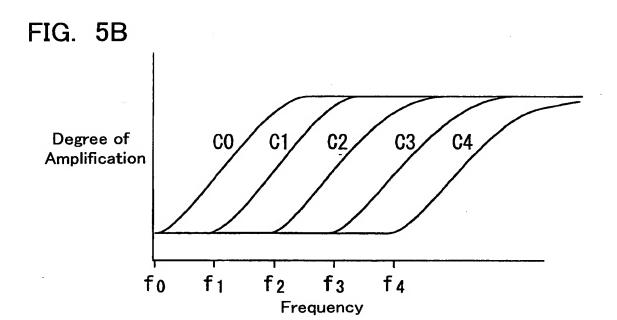
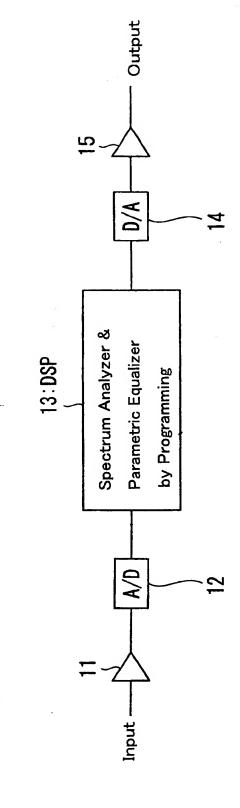


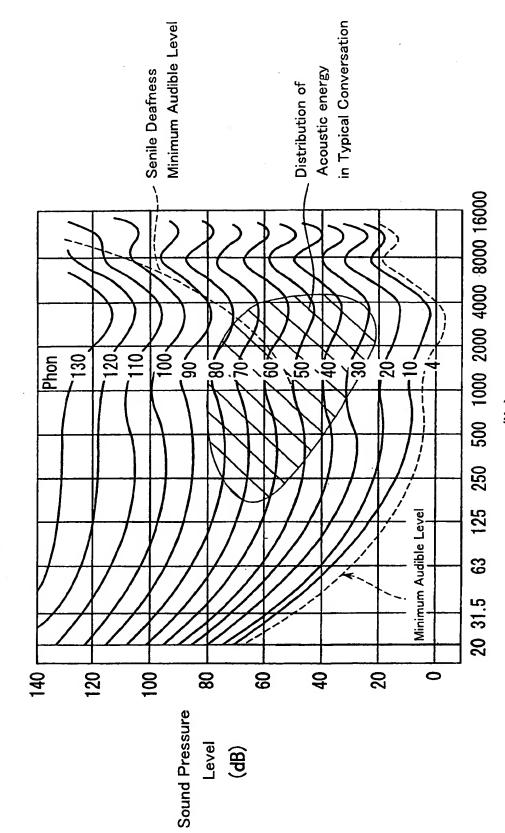
FIG. 5A







Equisiganl Curves of Loudness of Sound



Frequency (Hz)

Formants of Japanese Vowels

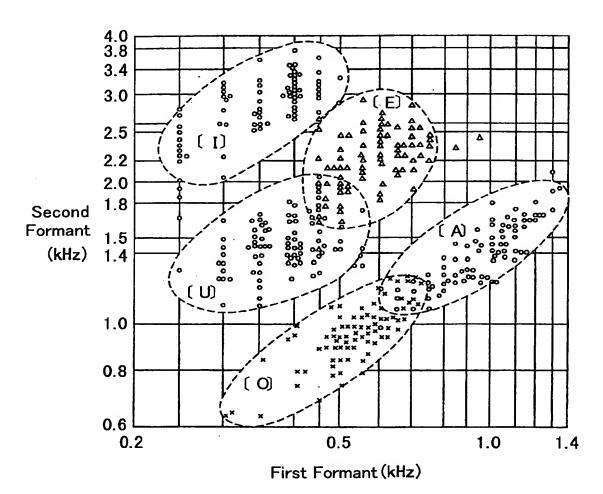


FIG. 9

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First Formant Frequency (KHZ)	1.0	0.35	0. 4	0.6	0.5
Second Formant KHZ] Frequency	1.5	2.7	1.4	2.5	1.0
Frequency Ratio	1.5	7.7	3.5	4.17	2.0